

REMARKS

Claims 1, 8, 14, and 15 have been amended and claims 1-20 remain pending.

35 U.S.C. §112

Applicants have amended claim 16 to overcome the rejection under 35 USC § 112, second paragraph.

35 U.S.C. §§ 102 and 103

Applicants request reconsideration of the rejections of claims 1, 5-7, 14, 15, 19, and 20 under 35 U.S.C. § 102 as being anticipated by Goto and the rejection of claims 2-4, 8-13, and 18 under 35 U.S.C. § 103 as being unpatentable over Goto et al in view of Nakasuji et al.

The electron beam exposure equipment of the present invention has an electron optics system irradiating plural electron beams arrayed at a predetermined pitch on a sample via aligners and a doublet lens having two electromagnetic lenses for forming one image. According to the invention, the position of the electron beam is measured and the amount of

operation of the aligners and the lenses are decided, based on the position of the electron beam.

Claim 1 sets forth in combination an aligner control circuit that drives aligners for an electron beam emitted from an electron gun. Two electromagnetic lenses are provided for forming one image and a lens control circuit drives the two electromagnetic lenses. The position of the electron beam is measured and the electronic optics system is adjusted by using data to control the aligners, for example through an aligner control circuit, and the lenses, for example through a lens control circuit, based on the position of the electron beam. Claims 8 and 14, which are independent claims, have been amended to set forth means for measuring the position of the electron beam with changing excitation of the two electromagnetic lenses and means for resetting a driving current to the aligners and/or the excitation intensity of the two electromagnetic lenses based on the measured result of the position of the electron beam. Independent claim 15 sets forth an electron beam exposure method that has been amended to include steps of calculating data to drive the aligners and the two electromagnetic lenses based on the measured result of

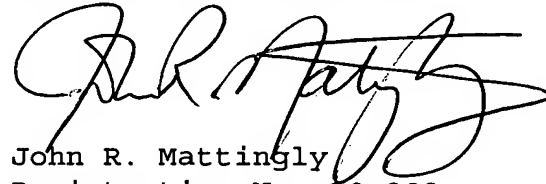
the position electron beam, and resetting the drive of the aligners and/or the excitation intensity of the two electromagnetic lenses based on the calculated data. The specification provides support for the limitations added to the amended claims. See page 8, lines 16-19 and page 9, lines 1-6 and lines 11-15 of the specification, for example, with reference to Fig. 1.

By the present invention, an electron beam exposure equipment or method permits optical adjustment in the electron optics system using the two electromagnetic lenses, which are necessary for large field projections. In contrast, the prior art references of Goto et al and Nakasuji et al do not disclose the calculating of data to control the aligners and the electromagnetic lenses based on the position of the electron beam, and in particular do not disclose the data control circuit that controls an aligner control circuit and a lens control circuit, as set forth in the amended claim 1. Accordingly, the pending claims are not anticipated by Goto et al or rendered obvious by the combination of Goto et al. and Nakasuji. Accordingly, the 35 U.S.C. §102(e) and 103 rejections should be withdrawn.

Conclusion

In view of the foregoing amendments and remarks,  
Applicants contend that the above-identified application is  
now in condition for allowance. Accordingly, reconsideration  
and reexamination is requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "John R. Mattingly", is written over the typed name.

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